

**PECO*****Smart Future Greater Philadelphia*****Abstract**

PECO's Smart Future Greater Philadelphia project includes deployment of advanced metering infrastructure (AMI) and distribution automation assets. AMI supports new electricity pricing programs for customers and pilot programs, such as in-home devices that provide energy information and energy usage control. Distribution Automation (DA) helps PECO improve service to customers and reduce energy loss by managing circuit voltages. These systems help PECO improve operational efficiency and service quality for customers.

**Smart Grid Features**

**Communications infrastructure** is multi-tiered and includes a high-bandwidth fiber optics and microwave "core" network for Tier 1; a medium-bandwidth radio frequency "backhaul" for Tier 2; a low-bandwidth radio frequency "field area network" for Tier 3; and supports home area networks for Tier 4. The project includes installing 368 miles of fiber optic cable connecting 71 substations for the Tier 1 core network and providing new digital communications for existing system telemetry, voice, and protection applications; the Tier 2 wireless backhaul network connecting Tier 3 to Tier 1; and a Tier 3 network providing system wide communications for AMI and DA. The new communications infrastructure supports more flexible and reliable operation of the distribution system while providing PECO the ability to add future programs and functionality for its customers.

**Advanced metering infrastructure** includes an accelerated deployment of more than 600,000 smart meters, a meter data management system and the integration of AMI with existing back office systems. PECO's AMI supports outage and restoration notifications and a remote service switch that enables PECO to respond to outages and customer requests more efficiently.

**At-A-Glance****Recipient:** PECO**State:** Pennsylvania**NERC Region:** ReliabilityFirst Corporation**Total Budget:** \$415,119,000**Federal Share:** \$200,000,000**Project Type:** Advanced Metering Infrastructure  
Customer Systems  
Electric Distribution Systems**Equipment**

- More than 600,000 Smart Meters
- AMI Communication Systems
- Web Portal Access
- Distribution System Automation/Upgrades
  - Distribution Management System/SCADA
  - Intelligent Substation Upgrades
  - Feeder Monitors/Indicators
  - Automated Feeder Switches
  - Capacitor Automation Equipment

**Dynamic Pricing Programs**

- Time of Use – Pilot program offered to 120k Residential, 10k Commercial accounts
- In-Home Displays – Pilot ~200 accounts
- Customer Education and Communication

**Targeted Benefits**

- Improved Electric Service Reliability and Power Quality
- Reduced Truck Fleet Fuel Usage
- Reduced Greenhouse Gas and Criteria Pollutant Emissions

**Advanced pricing programs** will educate customers about dynamic pricing and encourage them to take action during times of high energy prices. A dynamic pricing pilot will offer time of use rates to a limited number of residential and commercial accounts. PECO's plan has been developed involving input from stakeholders and the PA Public Utility Commission. PECO also plans to conduct pilot demonstrations with a limited number of low-income (Customer Assistance Programs, or CAP) customers provided with smart meters and in-home displays. The pilot is designed to help CAP customers understand how much energy they use and how their usage compares to their CAP rate monthly allowance. This information and the accompanying educational material will be designed to help these customers more effectively manage their energy consumption. On February 22, 2013, PECO filed with the PaPUC an updated Petition and revised Dynamic Pricing Plan consistent with the PaPUC Motion of September 13, 2012. The PaPUC approved the filing on May 9, 2013.

**Distribution automation systems** include 100 new reclosers and communications upgrades for more than 300 existing reclosers. These devices will help reduce sustained outages and restoration times and improve operational efficiency. Systems also include intelligent substation upgrades with disturbance monitoring capabilities.

**Distribution system energy efficiency improvements** include an Integrated Volt Var application with automated capacitor banks installed at two substations, enabling improved voltage and reactive power control on 55 distribution circuits to improve voltage regulation and reduce energy losses. A distribution management system involves integration with the other distribution automation assets to enable PECO to manage power distribution to better match customer demand.

### Timeline

Key Milestones	Target Dates
Distribution asset deployment begins	Q3 2011
AMI asset deployment begins	Q2 2012
AMI asset deployment ends	Q4 2013
Distribution asset deployment ends	Q2 2014
DMS implementation ends	Q2 2014

### Contact Information

Lawrence Grant

Smart Grid/Smart Meter Compliance Reporting Lead

PECO Energy Company

Lawrence.Grant@exeloncorp.com

Recipient Team Project Web Site: <http://www.peco.com/technology/>